Setup Watson Explorer 11.0.0.1 Fundational Components on Linux

Abstract

This guide are my step by step guide to setup WEX 11.0.0.1 on one machine. This virtual machine are Linux CentOS 6.7 and will be used as a lab machine. All components are installed on this machine

1 – Download the following files from passport advantage or partner world

```
[[root@watson wts]# ls -lah
total 6.2G
drwxr-xr-x.  2 root root 4.0K Jul  1 11:56 .
drwxrwxrwt. 14 root root 4.0K Jul  1 11:56 ..
-rw-rw-r--.  1 1000 1000 1.4M Jun 14 16:33 IS_WATSON_EXPLORER_V11.0.1_INSTALL_GUIDE.pdf
-rw-rw-r--.  1 1000 1000  951 Jun 14 16:33 README.txt
-rw-r--r--.  1 root root 3.1G Jul  1 11:55 WATSON_EXPLR_EE_V11.0.1_LINUX_EN.tar
-rw-rw-r--.  1 1000 1000 1.1G Jun 14 16:38 wex-aac-11.0.1.0-ee.tar
-rw-rw-r--.  1 1000 1000 322M Jun 14 16:36 wex-appbuilder-11.0.1.0-ee_en.rpm
-rw-rw-r--.  1 1000 1000  46M Jun 14 16:34 wex-bigindex-11.0.1.0-ee_en.rpm
-rw-rw-r--.  1 1000 1000 1.1G Jun 14 16:37 wex-engine-11.0.1.0-ee_en.rpm
-rw-rw-r--.  1 1000 1000 223M Jun 14 16:35 wex-knowledgecenter-11.0.1.0-ee_en.rpm
-rw-rw-r--.  1 1000 1000 277M Jun 14 16:36 wex-resultsmodule-11.0.1.0-ee_en.rpm
-rw-rw-r--.  1 1000 1000 127M Jun 14 16:35 wex-zookeeper-11.0.1.0-ee_en.rpm
[root@watson wts]#
```

2- Collecting user/group information

You need the apache http server installed. To install apache just run:
yum –install httpd
and then start apache
service httpd start

```
[[root@watson opt]# ps -eo user,group,comm | egrep 'apache|httpd'
root      root      httpd
apache    apache    httpd
apache    apache    httpd
apache    apache    httpd
apache    apache    httpd
apache    apache    httpd
apache    apache    httpd
apache    apache    httpd
apache    apache    httpd
[root@watson opt]#
```

The three columns of this output identify the user , group, and name of every process that contains either the strings "apache" or "httpd". This output shows that, while the root user and group started the first httpd process, the others are running as the user and group apache, as expected. If you are running a web server other than the

Apache web server (which is not recommended), you would change the processes that you are searching for (`apache|httpd`, in the previous example) to contain the name of your web server's executable.

3 Install Watson Explorer Foundational Component Modules

Module	Module file extensions: Linux:.rpm, Windows: .msi
Watson Explorer Engine	wex-engine-11.0.1.x
Zookeeper	wex-zookeeper-11.0.1.x
Application Builder	wex-appbuilder-11.0.1.x
Results Module	wex-resultsmodule-11.0.1.x
BigIndex	wex-bigindex-11.0.1.x
Knowledge Center	wex-knowledgecenter-11.0.1.x

```
[root@watson wts]#  rpm -ivh wex-engine-11.0.1.0-ee_en.rpm
Preparing...              ################################### [100%]
   1:wex-engine           ################################### [100%]
[root@watson wts]# rpm -ivh wex-zookeeper-11.0.1.0-ee_en.rpm
Preparing...              ################################### [100%]
   1:wex-zookeeper        ################################### [100%]
[root@watson wts]# rpm -ivh wex-appbuilder-11.0.1.0-ee_en.rpm
Preparing...              ################################### [100%]
   1:wex-appbuilder       ################################### [100%]
[root@watson wts]# rpm -ivh wex-resultsmodule-11.0.1.0-ee_en.rpm
Preparing...              ################################### [100%]
   1:wex-resultsmodule    ################################### [100%]
[root@watson wts]# rpm -ivh wex-bigindex-11.0.1.0-ee_en.rpm
Preparing...              ################################### [100%]
   1:wex-bigindex         ################################### [100%]
[root@watson wts]# rpm -ivh wex-knowledgecenter-11.0.1.0-ee_en.rpm
Preparing...              ################################### [100%]
   1:wex-knowledgecenter  ################################### [100%]
[root@watson wts]# []
```

4 Configuring Watson Explorer Modules

The Zookeeper module must be configured before application builder, it is mandatory step. The configuration files default location on linux is /opt/ibm/WEX/nameofmodule

Module	Configuration File Name (Microsoft Windows add .exe extension)
Zookeeper	zookeeper-config
Application Builder	appbuilder-config
Results Module	resultsmodule-config
Knowledge Center	knowledgecenter-config
Watson Explorer Engine	velocity-config

5 Generating a New Encryption Key with the Encryption

The generate-key command is location in the bin subdirectory of a Watson Explorer Engine installation. This command enables you to generate new encryption keys for that installation

Go to /opt/ibm/WEX/Engine/bin and urn ./generate-key

```
[root@watson bin]# ./generate-key
2016/07/01 13:27:25 Generating a new encryption key
WARNING: An encryption keyfile already exists on disk at '/opt/ibm/WEX/Engine/data/static/id_vcrypt'
Any data encrypted using this key cannot be decrypted after generating a new key.
Are you certain you wish to continue? [y/N] y
2016/07/01 13:27:27 Backing up current key to '/opt/ibm/WEX/Engine/data/static/id_vcrypt.bak'
2016/07/01 13:27:27 The new key has been written to '/opt/ibm/WEX/Engine/data/static/id_vcrypt'
[root@watson bin]# ls /opt/ibm/WEX/Engine/data/static/
admin-cmd.xsl            crawler-options.xml   links.xsl                           root_alert.xsl         tree.xsl
admin-lite.xml           css-admin.xsl         login.xsl                           scheduler.xsl          User.skm
admin-options-root.xsl   css.xsl               matrix.cha                          schema.xsl             users.xsl
admin.xml                ctypes.cha            normalize-source.xsl                se-remote.xsl          util.xsl
admin.xsl                dict-root.xsl         nvp.xsl                              se.xsl                 Vivisimo-MIB.txt
binning-root.xsl         Dict.skm              options.xsl                         shared.xsl             vivisimo.xsd
bootstrap-server-root.xsl documents.xsl        parser_debug.xsl                    sources.xsl            xml-source-v.xsl
bootstrap-view.xsl       exception-catalog.xml parser_parser.xsl                   source-test-email.xsl  xml-source.xsl
bootstrap.xsl            Freq.skm              parser_xmlout.xsl                    source-test.xsl        xsl-check.xsl
ca-bundle.crt            functions.xsl         report-email.xsl                    sstree.xsl             xsl_debug.xsl
cforms.cha               grammar.cha           reporting.xsl                       standalone.xsl         xsl_input.xsl
chadic.da                id_vcrypt             report.xsl                          Stop.skm               xsl_profile.xsl
chadic.dat               id_vcrypt.bak         request_body.xsl                    stopwords              xsl_sheet.xsl
chadic.lex               kb.xsl                request_head.xsl                    table.cha              xsl_xmloutput.xsl
chasenrc                 key                   request_node.xsl                    thbrk.br
common.xsl               key-match-root.xsl    rich-preview-generic-error-dummy.txt thbrk.sbm
connect.cha              language-model        rich-preview-timeout-dummy.txt      thbrk.tl
[root@watson bin]#
```

6 Run micro-test utility for Engine

This test simulates direct writing of a file to a specified directory. The size of the file and amount of data that is written to that file at any one time can be also specified. Write times are reported in megabytes per second.

on /opt/ibm/WEX/Engine/bin run:

./micro-test –all /tmp/

```
[[root@watson bin]# ./micro-test --all /tmp/
 System micro-test tool.

 Run with --help for information about individual tests.
 Starting full run.

 Starting mktemp test: 20000 reps, P=0.00, dir=/tmp//micro-test-temp.
  20000   20000 0.04 ms/temp
 Starting buffered write test: 42949672960 bytes in /tmp//micro-test-temp
 21700   40960 63.01 MB/seccc
```

7 Configuring the Embedded Web Server for Development Environments

./velocity-config webserver/is-enabled=True

```
[[root@watson bin]# ./velocity-config webserver/is-enabled=True
webserver/is-enabled:          true

Configuration saved.
[root@watson bin]#
```

```
[[root@watson bin]# ./velocity-config global/user=apache
global/user:                   apache

Configuration saved.
[root@watson bin]# ./velocity-config global/group=apache
global/group:                  apache

Configuration saved.
[root@watson bin]#
```

Start the embedded web server:

 ./velocity-startup

```
[root@watson bin]# ./velocity-startup
2016/07/01 13:42:27 starting with  /opt/ibm/WEX/Engine/webserver/webserver.conf.template

The url for the Watson Explorer Engine administrative interface is:
        http://watson.plansis.com.br:9080/vivisimo/cgi-bin/admin
[root@watson bin]#
```

Executing the `velocity-config` command with no options displays the configuration options that are available for the embedded web server and their current value

```
[root@watson bin]# ./velocity-config
Updated: 2016-07-01 13:39:47.029922124 -0300 BRT
global/admin-email:         admin@localhost
global/admin-url:           http://watson.plansis.com.br:9080/vivisimo/cgi-bin/admin
global/api-url:             http://watson.plansis.com.br:9080/vivisimo/cgi-bin/velocity
global/user:                apache
global/group:               apache
HTTPauth/password:          <unset>
HTTPauth/user:              <unset>
webserver/base-url:         /vivisimo/
webserver/debug:            false
webserver/host:             watson.plansis.com.br
webserver/is-enabled:       true
webserver/is-ssl-enabled:   false
webserver/port:             9080
webserver/ssl-certificate:  <unset>
webserver/ssl-certificate-key: <unset>
```

Open a browser window and go to http://servername:8080/vivisimo/cgi-bin/admin
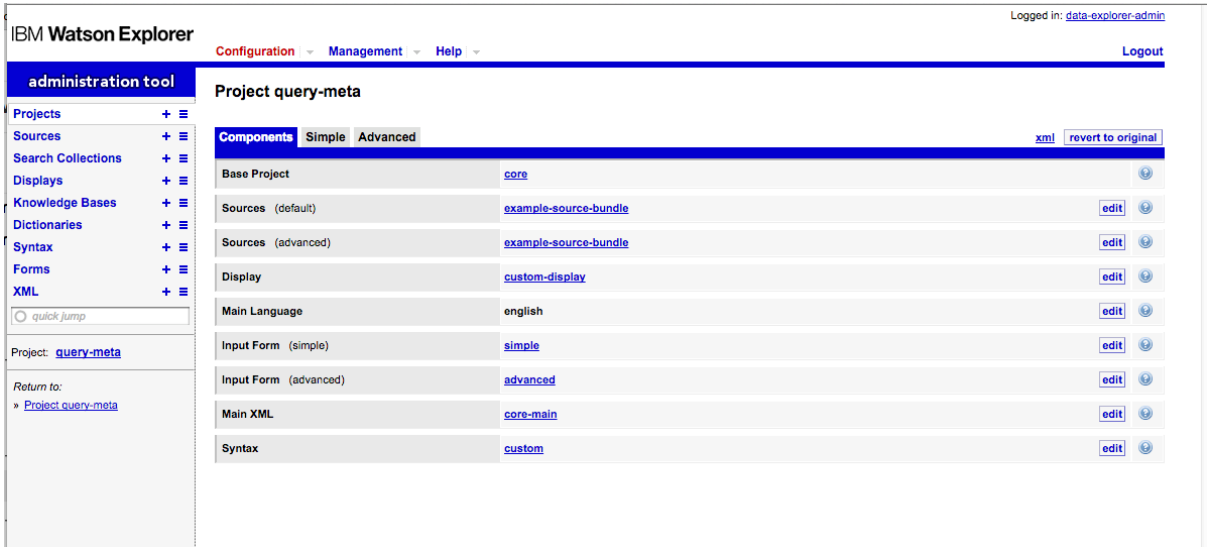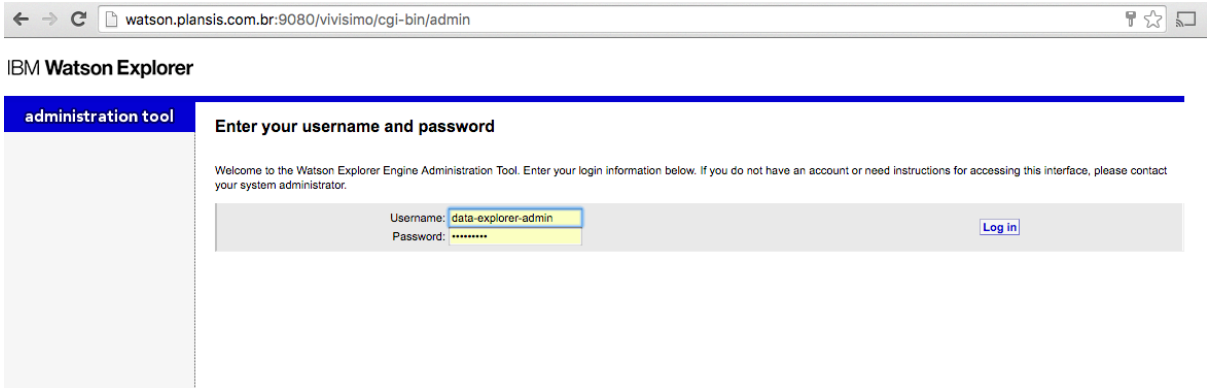
8 Configuring Zookeeper

```
[root@watson ZooKeeper]# ./zookeeper-config
```

Which language do you want to use for the configuration tool? The current language is ['en']. Other available languages are: ['en']:

Which port do you want ZooKeeper to listen on for clients? The port is currently [2181]:

Specify the directory to store ZooKeeper's data in. The current directory is [/opt/ibm/WEX/ZooKeeperData]:

Specify the ZooKeeper ID. It is currently [1]:

Specify the servers and ports ZooKeeper's cluster will use. The current list is [server.1=localhost:16777:16888]:

Provide any additional zookeeper configuration as a semicolon-separated list. The configuration is currently: [initLimit=1000;syncLimit=1000;tickTime=2000;autopurge.snapRetainCount=3;au topurge.purgeInterval=1]

Do you want to install ZooKeeper's service? [y/N]:y

9 Configuring application builder

Which language do you want to use for the configuration tool? The current language is ['en']. Other available languages are: ['en']:

What virtual directory should Application Builder use? The name is currently [AppBuilder]:

Which instance of Knowledge Center should Application Builder use for help links? It is currently using [http://www.ibm.com/support/knowledgecenter/SS8NLW_11.0.1]:

Which port do you want Application Builder to listen on? The port is currently [8080]:

Which ZooKeeper instance or instances do you want to use with Application Builder? The currently used instance or instances are [localhost:2181]:

Which namespace do you want to use for this instance of Application Builder? The currently used namespace is [production]:

Do you want to install the service for Application Builder? [y/N]:y

```
[[root@watson AppBuilder]# ./appbuilder-config
Which language do you want to use for the configuration tool? The current language is ['en']. Other available languages are: ['en']:

What virtual directory should Application Builder use? The name is currently [AppBuilder]:

Which instance of Knowledge Center should Application Builder use for help links? It is currently using [http://www.ibm.com/support/k
nowledgecenter/SS8NLW_11.0.1]:

Which port do you want Application Builder to listen on? The port is currently [8080]:

Which ZooKeeper instance or instances do you want to use with Application Builder? The currently used instance or instances are [loca
lhost:2181]:

Which namespace do you want to use for this instance of Application Builder? The currently used namespace is [production]:

Do you want to install the service for Application Builder? [y/N]:
n
[root@watson AppBuilder]# 
```

10 Configuring Results Module

[root@watson ResultsModule]# ./resultsmodule-config
Which language do you want to use for the configuration tool? The current language
is ['en']. Other available languages are: ['en']:

Which port do you want Results Module to listen on? The port is currently [8081]:

What virtual directory should Results Module use? It is currently [ResultsModule]:

Do you want to install the service for Results Module? [y/N]:y

```
[[root@watson ResultsModule]# ./resultsmodule-config
Which language do you want to use for the configuration tool? The current language is ['en']. Other available languages are: ['en']:

Which port do you want Results Module to listen on? The port is currently [8081]:

What virtual directory should Results Module use? It is currently [ResultsModule]:

Do you want to install the service for Results Module? [y/N]:
y
[root@watson ResultsModule]# 
```

11 Configuring Knowledge Center

[root@watson KnowledgeCenter]# ./knowledgecenter-config
Which language do you want to use for the configuration tool? The current language
is ['en']. Other available languages are: ['en']:

Which virtual directory do you want Knowledge Center to use? It is currently [/kc]:

Which port do you want Knowledge Center to listen on? The port is currently [9090]:

Do you want to install the service for Knowledge Center? [y/N]:n
[root@watson KnowledgeCenter]#

```
[root@watson KnowledgeCenter]# ./knowledgecenter-config
Which language do you want to use for the configuration tool? The current language is ['en']. Other available languages are: ['en']:

Which virtual directory do you want Knowledge Center to use? It is currently [/kc]:

Which port do you want Knowledge Center to listen on? The port is currently [9090]:

Do you want to install the service for Knowledge Center? [y/N]:
y
[root@watson KnowledgeCenter]#
```

12 Starting Watson Explorer Services

When starting services always start Zookeeper first

```
[[root@watson init.d]# service zookeeper-service start
ZooKeeper JMX enabled by default
Using config: /opt/ibm/WEX/ZooKeeper/zookeeper/bin/../conf/zoo.cfg
Starting zookeeper ... STARTED

[root@watson init.d]# []
```

```
[[root@watson init.d]# service resultsmodule-service
Usage: /etc/init.d/resultsmodule-service {start|stop|status|restart}
[[root@watson init.d]# service resultsmodule-service start
Starting server ResultsModule.
Server ResultsModule started with process ID 7687.

[root@watson init.d]#
```

```
[[root@watson init.d]# service knowledgecenter-service start

[root@watson init.d]# 
```

```
[[root@watson init.d]# service appbuilder-service start
Starting server AppBuilder.
Server AppBuilder started with process ID 7932.

[root@watson init.d]#
```
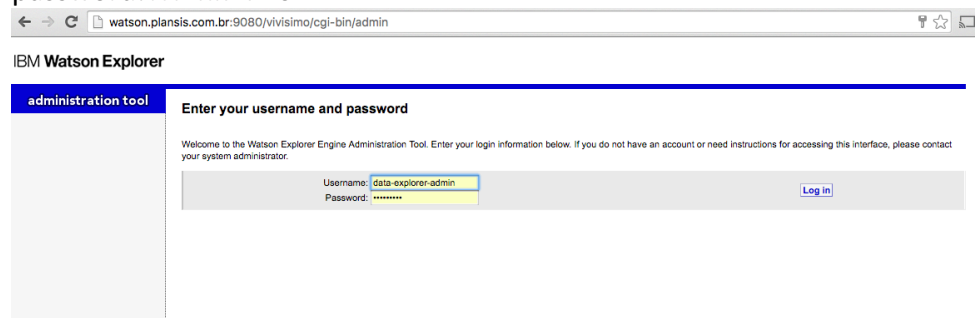
13 Acessing Watson Explorer Modules

Watson Explorer Engine
http://<servername>:9080/vivisimo/cgi-bin/admin

user: data-explorer-admin
password:TH1nk1710
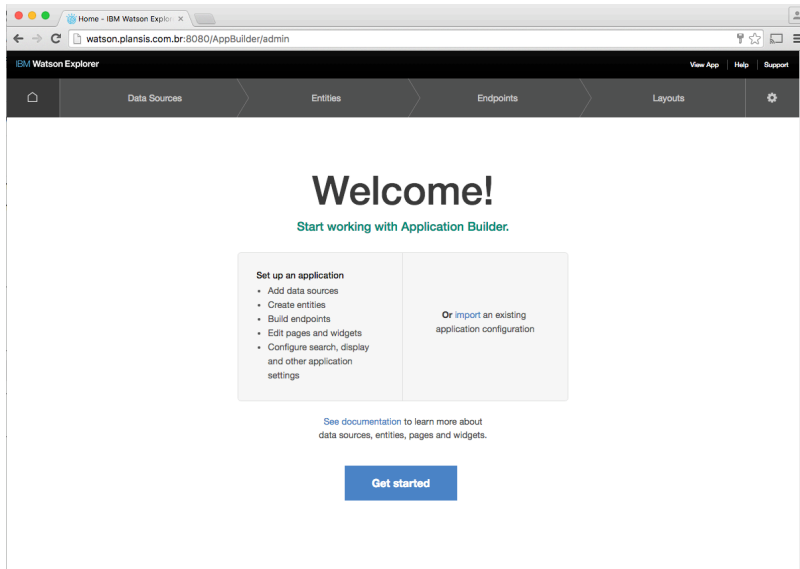

Application Buider

http://<servername>:8080/AppBuilder/admin

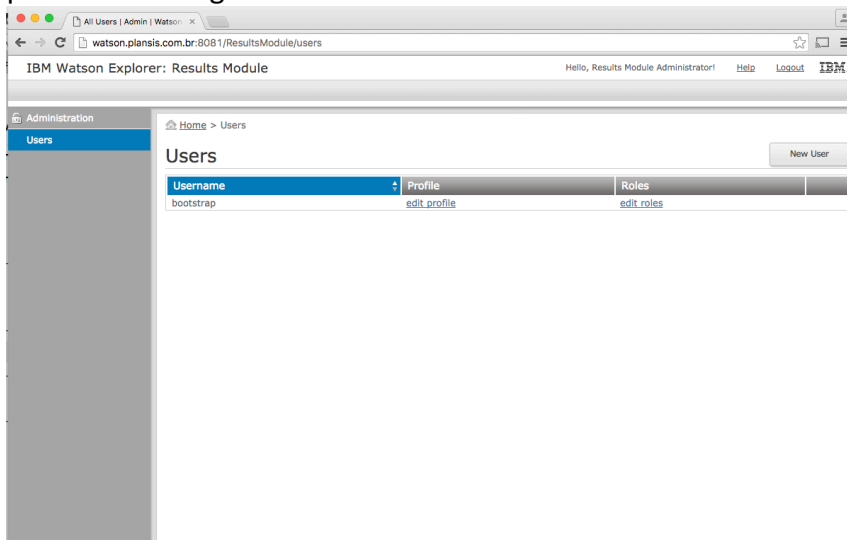user: data-explorer-admin
password:TH1nk1710

Results Module

http://<servername>:8081/ResultsModule

user: bootstrap
password: changeme

14 Installing Query Modifier

Add this to .bashrc for root

Add this to your .bashrc file:

```
export PATH=/opt/ibm/WEX/Engine/java/jre/bin:$PATH
```

You might also need to add

```
export JAVA_HOME=/opt/ibm/WEX/Engine/java/jre
```

As either root user or a user with `sudo` ability, locate the Watson Explorer Engine installation directory, by default `/opt/ibm/WEX/Engine`. The Query Modifier installer, `querymodifier-install.sh`, can be found in the `nlq` directory of your Watson Explorer Engine installation directory.

Chmod 775 querymodifier-install.sh

./querymodifier-install.sh

```
[[root@watson nlq]# ./querymodifier-install.sh
Copying /opt/ibm/WEX/Engine/examples/nlq/querymodifier/querymodifier-production.yml.defaults to /opt/ibm/WEX/Engine/nlq/querymo
difier-production.yml...
Configuring port to 9080...
Configuring path to vivisimo/cgi-bin/velocity...
Configuring PEARs path to /opt/ibm/WEX/Engine/data/pears...
Copying querymodifier-2.1.9.jar to /opt/ibm/WEX/Engine/nlq/querymodifier.jar...
Giving executable permissions to /opt/ibm/WEX/Engine/nlq/querymodifier.jar...
Removing any existing /etc/init.d/querymodifier...
Linking /etc/init.d/querymodifier to ...
Done.
[root@watson nlq]#
```

start querymodifier /etc/init.d/querymodifier start

```
[[root@watson nlq]# /etc/init.d/querymodifier start
which: no start-stop-daemon in (/opt/ibm/WEX/Engine/java/jre/bin:/usr/lib64/qt-3.3/bin:/usr/local/sbin:/usr/local/bin:/sbin:/b
n:/usr/sbin:/usr/bin:/root/bin)
Started [9603]
[root@watson nlq]#
```

15 Configuring Query Modifier

Query Modifier is configured using a `querymodifier-production.yml` file, an example of which is provided as `querymodifier-production.yml.defaults` in the `examples/nlq/querymodifier` directory and which is installed into the `nlq` directory by the installer.

This file is used to configure how Query Modifier communicates with Watson Explorer, where to find important PEAR files, which query modification strategies to use, and how to configure each of those strategies.

A context is a label for a collection of query modification strategies. Currently, Query Modifier only supports naming a context after a search collection. For example, to configure query modification strategies to be applied specifically and only to the example-metadata collection, define an `example-metadata` context in the configuration file.